a set of active interrogation electrodes located on [a] said first catheter;

a signal digitizer coupled to said passive measurement electrodes for generating a set of numerical representations of electric field potentials present at each of said set of passive electrodes locations;

a first pulse generator coupled to said active interrogation electrodes for generating an interrogation electric field at a first frequency;

[a] said signal digitizer coupled to said passive measurement electrodes for converting said set of numerical representations [electric field potentials at said set of passive measurement electrodes] to a set of wall distance measurement values representing the perturbation of said interrogation electric field by the walls of said heart,;

said signal digitizer for converting electrophysiological signals present at said set of passive electrodes to a set of activity measurements representing the electrical activity of said heart;

convertor means for generating a graphic representation of an endocardial surface from said set of wall distance measurement values [wall distance measures];

A1

convertor means for generating a display of activity measurements on said representation of said endocardial surface.

10. (amended) The system of claim 9 further including:

a set of locator electrodes located on a second catheter, said second catheter located in said heart chamber;

a second pulse generator coupled to said locator electrodes for generating an electric field;

[a] said signal digitizer coupled to said passive measurement electrodes for converting electric field potentials at said set of passive measurement electrodes to a set of distance measurement values representing the location of said set of locator electrodes [within said heart];

converter means for generating a representation of the position of said locator electrodes [(]on said representation of said endocardial surface[)] [within said heart chamber].

11. (amended) The system of claim 10 wherein said convertor means generates a representation of the position of said locator electrodes on said representation of said endocardial surface.

A1

Please add the following new claims numbered consecutively form the highest number present in the application as filed:

29 An interface system for monitoring passive electrodes and driving active electrodes on an endocardial mapping catheter, the interface system comprising:

a) a passive electrode interface adapted to monitor the passive electrodes;
b) an active electrode interface adapted to drive the active electrodes;
c) a computer interface adapted to allow computer monitoring of the passive electrodes and driving of the active electrodes.
d) a signal generator controlled by the computer interface, the signal generator electrically connected to the active electrode interface.

30 The interface system of claim 29, further comprising:

e) a surface electrode interface adapted for electrical connection to surface electrodes; and

31 The interface system of claim 30, wherein the signal generator is further electrically connected to the surface electrode interface.

32 The interface system of claim 31 further comprising

A2

f) a therapy catheter interface adapted to electrically connect to electrodes on a therapy catheter.

33 The interface system of claim 32 wherein the therapy catheter interface is electrically connected to the computer interface through a signal conditioner.

34 The interface system of claim 32 wherein the therapy catheter interface further comprises a locator electrode interface, and the signal generator is electrically connected to the locator electrode interface.

35 The interface system of claim 32 further comprising:

g) an ECG subsystem in communication with the computer interface and the surface electrode interface.

36 The interface system of claim 0, further comprising

h) a therapy catheter interface adapted to electrically connect to electrodes on a therapy catheter.

37 The interface system of claim 36, wherein the therapy catheter interface further comprises a therapy electrode interface for delivering ablation energy to the therapy catheter.

38 The interface system of claim 29 wherein the passive electrode interface further comprises a signal conditioner having a high pass section and a low pass section.